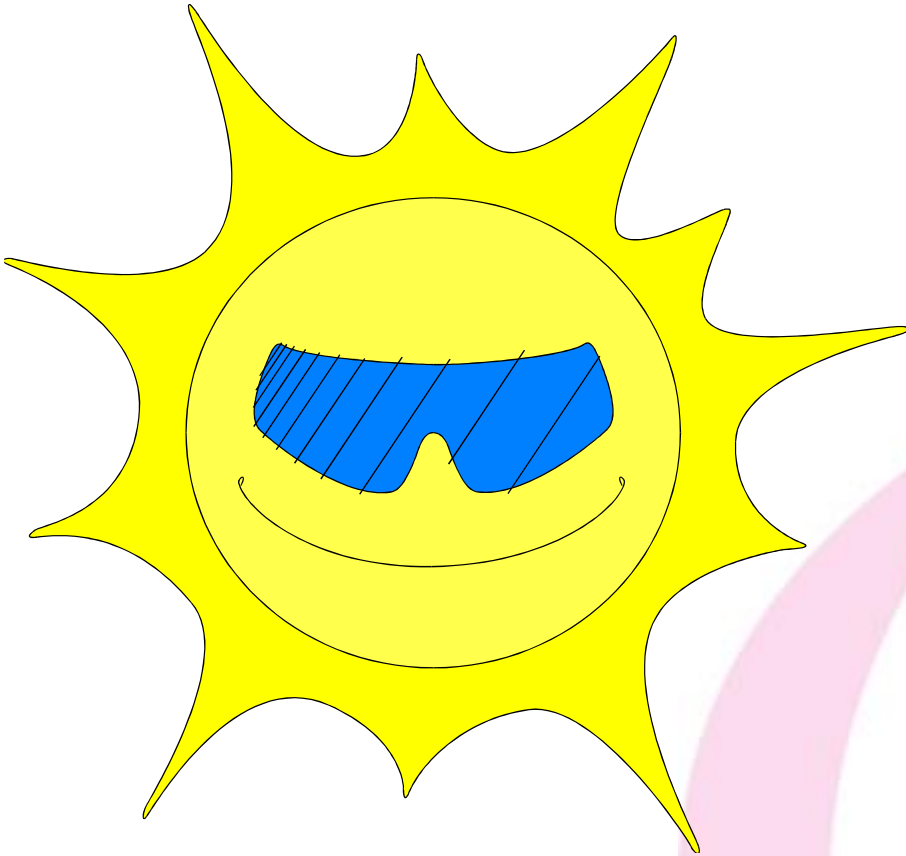
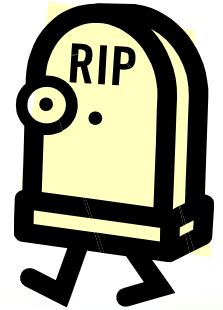


# HEAT STRESS

## Prevention Program



# FACTS



- Although heat-related illness and death are readily preventable, the CDC reports an annual average of 600 Heat related deaths and over 7,000 Heat related illnesses in the USA.

# More Facts



- If muscles are being used for physical labor, less blood is available to flow to the skin and release heat.
- If the body can't dispose of excess heat, it will store it. When this happens, the body's core temperature rises and the heart rate increases.
- Heat Stress can be caused from this build up of heat if it is not controlled or released.

# More Facts

- Don't use the feeling of thirst as an indicator that you need water.
- You can deplete as much as 30% of your body's water before you feel thirsty. Drink plenty of water before, during and after time spent in the heat.
- Individuals vary in their tolerance to heat stress conditions.



# Are you at risk of outdoor heat stress?

- Environmental Factors
- Workload Activities
- Clothing and Personal Protective Equipment
- Personal Risk Factors

One Good resource to figure what the “Real Feel” outside is the OSHA app.  
Free at this web site: [https://www.osha.gov/SLTC/heatillness/heat\\_index/heat\\_app.html](https://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html)

# Personal risk factors

- ✓“I’m tough ~ I don’t need a water break”
- ✓“I’m not thirsty ~ I don’t need to drink”
- ✓“I’ll lose pay if I take a water break”
- ✓“I’ll be letting my team down”
- ✓“I’m new here ~ I need to prove myself”

**Don’t fall for these beliefs – we want you healthy!**

# Preventing Heat Illnesses

- Know the factors that increase risk:
  - The environment you're working in
  - The work you're doing
  - Your own conditioning
- Think about what you can do to prevent heat stress.



# Basic Steps to a Heat Stress Prevention Program: (P.A.S.T.)

## Planning

Plan the job including checking the weather and providing shade and emergency response capabilities.

## Access to Water

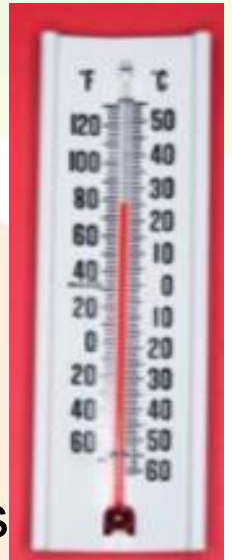
Ensure the proper amounts of clean, cool water are available.

## Shade

Provide shaded areas for breaks and cool down.

## Training

Train workers on how to recognize and avoid heat issues. As with any task, workers should be aware of the hazards **before** starting a job.



# Planning: What to Do?

If you suspect that someone is suffering from heat exhaustion:

- get them to a cool spot
- lay the person down
- elevate their feet
- loosen their clothing
- give cool (not ice) water



# Planning: Clothing & Schedule

- Choose proper clothing.
  - Choose light colors and lightest weight possible
  - Select proper personal protective equipment
- Schedule tasks with some consideration for the heat.
  - Work/rest cycles
  - Heaviest tasks early morning or dusk
- Eat properly, get enough sleep & rest.



# Access to Water



- Drink plenty of fluids:
  - Don't rely on your thirst.
  - Drink 5-7 oz. every 20 minutes.
  - Salt tablets are not recommended and may be hazardous to many people.
- Acclimatization – adjust to the heat:
  - The body takes 3-5 days or more to get used to the heat.
  - Be careful when returning from a change in routine (e.g. vacation).

# Access to Water

- ❖ Potable drinking water must be made available to the employee.
- ❖ Maintain, at all times, sufficient quantities of cool, potable drinking water (i.e.: enough to provide at least one quart per employee per hour for the entire shift).



# Access to Water



- ❖ Water must be fit to drink. Water containers CANNOT be refilled from non-potable water sources (e.g. irrigation wells, sprinkler or firefighting systems).
- ❖ Care must be taken to prevent contamination of the drinking water supplied to the workers.

# Access to Water

- ❖ Place the water containers as close as possible given the working conditions and layout of the worksite.
- ❖ Make it readily accessible!
- ❖ Encourage the frequent drinking of water.

**Remind workers not to wait until they are thirsty!**



# When the temperatures are extreme: **Shade Up!**

- ❖ Have and maintain one or more areas of shade at all times, when employees are present.
- ❖ Locate the shade as close as possible to the area where employees are working.



# Shade Up (continued)

- ❖ Provide enough shade to accommodate at least 25% of the employees on the shift at any one time.
- ❖ **Remember:** Access to shade must be permitted at all times.



# Shade Up (continued)



- ❖ Encourage employees to take a cool-down rest in the shade, for a period of no less than 5 minutes at a time.
- ❖ Shaded area must not cause exposure to another health or safety hazard. Areas underneath mobile equipment (e.g.: tractor), or areas that require crouching in order to sit fully in the shade are not acceptable.

# Training: Environmental Factors

- Air temperature
- Humidity
- Radiant heat source
- Air circulation



# Training: Work-related Factors

- Workload

- Type of work
- Level of physical activity
- Time spent working

- Clothing

- Weight (heavy vs. breathable)
- Color (dark vs. light)
- Personal protective equipment and clothing



# Training: Personal Factors

- Age
- Weight/fitness
- Use of drugs, alcohol, caffeine, medication
- Prior heat-related illness
- Obesity
- Several days of sustained exposure to hot temperatures



# **DO NOT!**



- **DO NOT** underestimate the seriousness of heat illness.
- **DO NOT** give the victim medications to reduce fever.
- **DO NOT** give the victim liquids that contain alcohol or caffeine.
- **DO NOT** give anything by mouth if HEAT STROKE is suspected.

# Training: When Cooling Mechanisms Fail

- High air temperature reduces the effectiveness of the bodies cooling system. This causes more heat stress in high humidity conditions.
- High humidity reduces the evaporation rate of sweat. While dry or low humidity air increases the evaporation rate. This is also why increased air flow or a breeze makes you feel cooler.
- Excess loss of sodium, excess perspiration
- Dehydration, not enough fluid intake.



# Major Heat Stress Injuries and Illnesses

- Heat Rash
  - Heat Cramps
  - Heat Syncope
  - Heat Exhaustion
  - Heat Stroke
- 
- The bottom right of the slide features three large, overlapping, semi-transparent abstract shapes. One is a light green shape at the top right, another is a light yellow shape below it, and a large light orange shape is at the bottom right. A pink, curved shape is also visible on the left side of the bottom half.

# Heat Rash

- Cause

- Inflamed skin



- Signs & Symptoms

- Rash w/pink pimples, itching, tingling

- Treatment

- Cleanse area & dry; apply calamine or other lotions



# Heat Cramps

- Cause

- Loss of salt

- Signs & Symptoms

- Painful spasms in arms, legs and abdomen
  - Hot, moist skin

- Treatment

- Drink water, rest, massage cramped areas



# Heat Syncope

- **Heat syncope** or fainting is a mild form of **heat** illness that often results from physical exertion when it is hot. It occurs when your body, in an effort to cool itself, causes the blood vessels to dilate to such an extent that blood flow to the brain is reduced
- Usually occurs in individuals standing erect and immobile in the heat.
- The person recovers rapidly after lying down.



# Training: Heat Stroke Recognition

- Heat Stroke is a life-threatening medical condition due to heat stress where the body temperature rises above 104°F. Symptoms include disorientation, chills, euphoria, convulsions, and unconsciousness. Immediate, aggressive cooling must be undertaken to save the worker's life.
- Cause
  - Total breakdown of the body's cooling system
- Signs & Symptoms
  - High body temperature (>104)
  - Sweating stops and skin is hot, red and dry
  - Headache, dizziness, weakness, rapid pulse, chills, difficulty breathing
  - If untreated, delirium and unconsciousness



# Heat Exhaustion



- Cause

- Too much loss of water & salt: sweating

- Signs & Symptoms

- Heavy sweating, intense thirst, skin is pale and cool, rapid pulse, fatigue or weakness, nausea & vomiting, headache, blurred vision, fainting

- Treatment

- Move to cool area, rest with legs elevated, loosen clothing, give fluids, cool with water & fan

# What are the most serious heat illnesses?

## Heat exhaustion and Heat stroke



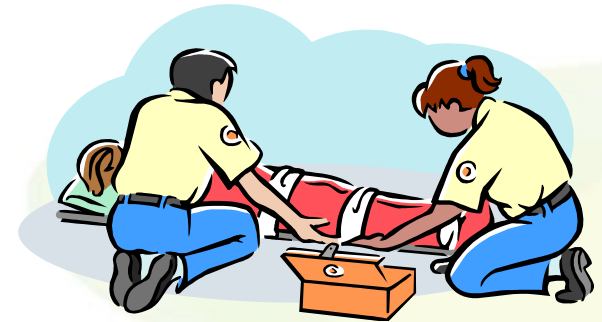
Untreated **heat exhaustion** may progress to **heat stroke**.  
Symptoms of either should always be taken seriously

### Note:

**Heat exhaustion or heat stroke may develop over a few days.**

# Heat Stroke: Treatment

- Treat as a medical emergency
  - May result in death if not treated
  - 4,000 Americans die each year
- Move victim to a cool area
- Give small cup of water (if not nauseous)
- Loosen and/or remove clothing
- Cool with water or massage with ice
- Fan vigorously to improve evaporation



# Dehydration

- Cause
  - Excessive fluid loss
- Signs & symptoms
  - Fatigue, weakness, dry mouth
- Treatment
  - Fluids and salt replacement



# Training: The Body's Response to Heat

- The body tries to maintain a constant internal temperature.
- When the internal temperature rises, the body attempts to get rid of excess heat by:
  - Increasing blood flow to the skin surface
  - Releasing sweat onto the skin surface



# Training: Effects of Body's Response

- Reduced blood flow to the brain
  - Reduced mental alertness and comprehension
- Reduced blood flow to active muscles
  - Fatigue, loss of strength
- Increased sweating
  - Slipperiness



***Potential result = a Higher rate of mistakes/injuries  
from too much heat***

# Employee Training



- ❖ Ensure all employees and supervisors are trained before beginning work that could reasonably be anticipated to result in a heat illness.
- ❖ Importance of acclimatization
- ❖ Importance of immediately reporting signs or symptoms of heat illness to a supervisor
- ❖ Procedures for responding to possible heat illness

# Employee Training (continued)

- ❖ Procedures to follow when contacting emergency medical services (nearest telephone) and if necessary transporting employees.
- ❖ Procedures that ensure clear and precise directions to the worksite; including designating a person to be available to ensure that emergency procedures are invoked when appropriate.



# REVIEW

Remember your ***P.A.S.T.*** so you can **Prevent** Heat injuries in the Future!

## **Planning**

Plan the job including checking weather, providing shade and emergency response capabilities.

## **Access to Water**

Ensure the proper amounts of clean, cool water are available.

## **Shade**

Provide shaded areas for breaks and cool down.

## **Training**

Train workers on how to recognize and avoid heat issues. As with any task, workers should be aware of the hazards **before** starting a job.

# Contact Information

## Questions?

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